

CLAIMS

What is claimed:

1. A method for forming a protective layer on a plurality of semiconductor device components, comprising:
providing a fabrication substrate carrying a plurality of semiconductor device components, adjacent semiconductor device components on said fabrication substrate being separated from one another by a street extending therebetween;
applying a protective material to active surfaces of at least said adjacent semiconductor device components;
severing said protective material and at least partially severing said adjacent semiconductor device components from one another along said street; and
healing cracks and delaminated areas in said protective layer formed during said at least partially severing.
2. The method of claim 1, wherein said providing comprises providing a fabrication substrate with at least one bond pad exposed at an active surface of each of said adjacent semiconductor device components.
3. The method of claim 2, wherein said providing comprises providing a fabrication substrate with a plurality of semiconductor device components comprising at least one of semiconductor devices, interposers, and carrier substrates.
4. The method of claim 2, wherein said applying comprises applying said protective material such that said at least one bond pad of each of said plurality of semiconductor device components is exposed through said protective material sufficiently to effect electrical contact therewith.

5. The method of claim 2, wherein said providing comprises providing said fabrication substrate with each of said plurality of semiconductor device components having a conductive structure protruding from said at least one bond pad thereof.
6. The method of claim 5, wherein said applying comprises applying said protective material such that said protective material contacts a base portion of at least one said conductive structure.
7. The method of claim 6, wherein said applying comprises forming a support structure around said base portion of said at least one conductive structure.
8. The method of claim 5, wherein said applying comprises applying said protective material such that said protective material is spaced apart from a base portion of at least one said conductive structure.
9. The method of claim 1, wherein said applying comprises applying a preformed sheet of protective material to said active surfaces.
10. The method of claim 9, wherein said applying said preformed sheet comprises applying a preformed sheet comprising partially cured protective material.
11. The method of claim 9, wherein said applying said preformed sheet comprises applying a preformed sheet comprising thermoplastic material.
12. The method of claim 9, wherein said applying said preformed sheet comprises applying a preformed sheet including apertures positioned to align with said at least one bond pad of each of said adjacent semiconductor device components.
13. The method of claim 2, wherein said applying comprises applying a preformed sheet of protective material to said active surfaces.

14. The method of claim 13, wherein said applying said preformed sheet comprises applying a preformed sheet comprising partially cured protective material.

15. The method of claim 13, wherein said applying said preformed sheet comprises applying a preformed sheet comprising thermoplastic material.

16. The method of claim 13, wherein said applying said preformed sheet comprises applying a preformed sheet including apertures therein positioned to align with said at least one bond pad of each of said adjacent semiconductor device components.

17. The method of claim 13, wherein said applying said preformed sheet comprises applying said preformed sheet such that said conductive structure protruding from each of said adjacent semiconductor device components on said fabrication substrate pass through a plane of said preformed sheet.

18. The method of claim 17, further comprising heating each said conductive structure prior to applying said preformed sheet.

19. The method of claim 1, wherein said applying comprises applying said protective material in a liquid state.

20. The method of claim 19, further comprising spreading said protective material to form a protective layer on said active surfaces.

21. The method of claim 20, wherein said applying said protective material in said liquid state comprises applying a quantity of a substantially uncured polymer to said active surfaces.

22. The method of claim 21, further comprising partially curing said polymer prior to said severing and said at least partially severing.

23. The method of claim 22, wherein said healing is effected while said polymer remains in a partially cured state.

24. The method of claim 23, further comprising further curing said polymer following said healing.

25. The method of claim 24, further comprising completely severing said adjacent semiconductor device components from one another along said street following said healing.

26. The method of claim 20, wherein said applying said protective material in said liquid state comprises applying liquefied thermoplastic material to said active surfaces.

27. The method of claim 26, further comprising permitting or causing said thermoplastic material to at least partially harden prior to said severing and said at least partially severing.

28. The method of claim 26, wherein said healing comprises heating at least portions of said thermoplastic material located over peripheral regions of said adjacent semiconductor device components following said severing and said at least partially severing.

29. The method of claim 27, further comprising completely severing said adjacent semiconductor device components from one another along said street following said healing.